# Floodplain Task Force Decision-Making Process
# Policy Issues and Implementation Tools

Discussion Draft for 12/3/02 Meeting

## POLICY ISSUES

This section identifies 4 broad floodplain management policy areas that should each be considered by the Task Force during the development of guiding principles for floodplain standards in Lincoln.

## 1. Flood Storage & Conveyance

This policy consideration relates to the hydrologic and hydraulic capacity and function of floodplains. It considers how floodplains convey and store floodwater during large storm events, and the effects of altering the geometry of the floodplain (e.g. placing fill in the flood fringe) upon this function. The National Flood Insurance Program (NFIP) recognizes that filling a substantial portion of the floodplain reduces storage for flood water and increases peak flows downstream. The COE Study and CDM Report identified some of the physical and economic impacts of this result. 'No Net Rise', 'Compensatory Storage', 'Half-Foot Rise Floodway' are some examples of potential tools that can be used to address this issue.

## 2. Natural & Beneficial Floodplain Functions

The NFIP recognizes that floodplains perform certain "natural and beneficial functions" that cannot be duplicated elsewhere. Two types of functions are identified that warrant protecting or restoring floodplains to their natural state:

a) Soil stabilization and natural attenuation of flood water which reduces flood velocities and provides flood storage to reduce peak flows downstream;

b) "Ancillary beneficial functions" beyond flood reduction, including improved water quality, wildlife habitat, minimization of sediment loads and impurities, moderation of water temperature, and groundwater recharge.

## 3. Property Protection

This policy area considers the protection of property and structures in the floodplain. Property protection strategies include "freeboard," or the level of protection required for a building above the 100-year flood elevation, and "substantial improvements," or the threshold at which a non-complying building must be brought into compliance with floodplain standards. It also includes property buyouts, which involves acquiring, relocating, or otherwise clearing buildings out of the 100-year floodplain. Property buyouts also have potential benefits that relate to both flood storage and conveyance and natural and beneficial functions.

## 4. Sustainability

This policy issue addresses the idea of seeking a balanced, sustainable approach to floodplain management, and it has a relationship to each of the policy issues listed above. An evaluation of floodplain standards relative to sustainability should include:

1) Property rights - including private business and development, neighborhood interests, and individual property owners who have the potential to be negatively impacted by development in the floodplain;

2) Long-term economic impact to the community - relative to public and private flood damage and flood mitigation, preservation or loss of natural floodplain functions, and community economic development.

## IMPLEMENTATION TOOLS

This section identifies a range of tools that could be used to implement guiding principles or policies for floodplain management. Each "tool" includes a question or questions that should be answered by the Task Force regarding its potential implementation. While the tools are organized by broad policy area, several could apply to more than one area. In particular, most of the tools listed under the first three policy areas also bear a relationship to the fourth policy area - Sustainability.

This section references the Fact Sheets booklet and the CDM Report handouts, which were distributed at the 11/19/2002 Floodplain Task Force meeting.

## 1. Flood Storage and Conveyance

### A. No Net Rise and Compensatory Storage

- Should a No Net Rise and Compensatory Storage standard be adopted? (See No Net Rise and Compensatory Storage fact sheet, page 4-6 of *Fact Sheets* booklet.)

- If such a standard were adopted, would it be practical and economically feasible to apply it to all stream crossing structures and other public infrastructure? (See page 2-12 of CDM Report, Note: The CDM Report assumes that there will be some fill in the flood fringe and that compensatory storage will be used to obtain the No Net Rise Standard.)

- Should the specific flood storage areas identified in the City of Lincoln Flood Insurance Study (FIS) for Salt Creek be reflected in the ordinance? (See Appendix A)

### B. Half Foot Rise Alternative

- Should a Half-Foot Rise Floodway standard be adopted? (see Half-Foot Rise Alternative fact sheet, page 26 of *Fact Sheets* booklet.)

- Should a Half-Foot Rise Floodway standard be coupled with compensatory storage in the flood fringe or a "density fringe" standard? (See *Fact Sheets* booklet: 1 - No Net Rise and Compensatory Storage fact sheet, page 4-6; and 2- Standards Exceeding Minimum Federal Requirements fact sheet, page 8, Snohomish Co, WA example and Definitions list.)

### C. Floodplain Mitigation

- Should a floodplain mitigation concept be established for flood storage? If so, how can appropriate mitigation areas be sited relative to proposed development sites? (See Floodplain Mitigation fact sheet, page 4-16 of *Fact Sheets* booklet.)

## 2. Natural & Beneficial Floodplain Functions

**A. Greenfield Approach** (see Greenfield Approach fact sheet, page 4-12 of *Fact Sheets* booklet.)

- Should the 'Minimum Flood Corridor' or another stream buffer standard be applied within the FEMA-mapped floodplains? (See Minimum Flood Corridor definition in Greenfield Approach fact sheet.)

- Should the minimum flood corridor standard be modified not to permit stormwater detention cells in the riparian corridor?

- Should a standard buffer (such as 100' each side of stream) be established?

- Should some impacts be allowed, but only if mitigated?

**B. Best Management Development Practices** (See Best Management Development Practices fact sheet, page 4-14 of *Fact Sheets* booklet.)

- Should special best management practices be required in floodplain areas?

- If so, what elements should be included (e.g., swales, water quality wetlands, retention cells, infiltration basins)?

- How should the current discrepancy between the City's ordinance and design standards be handled regarding the minimum flood corridor (i.e. apply in areas with no floodplain or in areas with no floodway)? (See Appendix B)

**C. Floodplain Mitigation** (see Floodplain Mitigation fact sheet, page 4-16 of *Fact Sheets* booklet).

- Should a mitigation system be established for riparian buffers and/or wetland areas within floodplains?

## 3. Property Protection

**A. Higher Freeboard Standard** (See Standards Exceeding Minimum Federal Regulations fact sheet, page 8 of *Fact Sheets* booklet.)

- Should the level that a building is required to be protected above the 100-year flood elevation be greater than 1 foot?

**B. Cumulative Substantial Improvements** (See Cumulative Substantial Improvements fact sheet, page 18 of *Fact Sheets* booklet.)

- Should the City's substantial improvement threshold be applied:
  - on a cumulative basis?
  - at a threshold lower than 50%?
  - on a limited basis only once every 5, 10, 20 years?

**C. Maintain Storage on Surplus/Vacated Property** (See Maintain Storage on Surplus/Vacated Property fact sheet, page 20 of *Fact Sheets* booklet.)

- Should the City continue its current policy for maintaining storage on surplus/vacated property, or should changes be made? Potential policies include:
  - Don't allow for storage to be 'mitigated' by acquisition of an easement over an alternate flood storage area?
  - Only allow flexibility in older areas of City or areas within City limits at time of ordinance?
  - Establish criteria to review on a case by case basis, especially for surplus properties?

**D. Property Buyout** (See Property Buyout fact sheet, page 4-8 of *Fact Sheets* booklet.)

- Should the City have a proactive floodplain buyout program with dedicated funds (or local match funds dedicated for grant programs)?

- If Property Buyouts are considered, what should be the criteria for minimizing impacts to neighborhoods and historic districts?

- What strategies should be used to promote buyouts that make sense relative to flood storage/conveyance/contiguous green spaces? Should eminent domain be considered?

## 4. Sustainability

**A. No Adverse Impact** (See No Adverse Impact fact sheet, page 6 of *Fact Sheets* booklet.)

- Is this a concept that makes sense to adopt for the City of Lincoln?

**B. Cluster/Open Space Development** (See Cluster/Open Space Development fact sheet, page 4-10 of *Fact Sheets* booklet.)

- Should there be a mandatory requirement for cluster development in the floodplain?

- Should there be additional incentives for cluster development in the floodplain?

**C. Floodplain Development Fee** (See Floodplain Development Fee fact sheet, page 24 of *Fact Sheets* booklet.)

- Should the City charge a floodplain development fee? If so, what should be the basis for the charge - volume of flood storage lost, area of disturbance, other?

**D. Land Use Relationship** (See July 23, 2002 Task Force Materials, "Comprehensive Plan Overview".)

- Should there be a different floodplain management approach for:

  - Floodplains already designated in the Comprehensive Plan for future urban land use, vs.

  - Floodplains in new growth areas designated as Agricultural Stream Corridor, Environmental Resources, Green Space, or Lakes and Streams?

**E. Watershed Master Planning** (See Watershed Master Plan Standards fact sheet, page 22 of *Fact Sheets* booklet.)

- Should the tie between watershed master plans for the City of Lincoln (and its future growth areas) and the zoning and subdivision ordinances be strengthened to clearly require:

    - Regulation of the 100-year floodplain as identified in completed master plans (for both development sites and individual buildings) until FEMA maps are amended to reflect the revised floodplain boundary?

    - Development information regarding stormwater runoff to be submitted on a sub-basin level that is compatible with the City/NRD watershed models?

    - Impacts of individual developments to be compatible with the master plan goals regarding water quantity?

    - Regulation of the future conditions 100-year floodplain as identified in each watershed master plan?

**F. Application of Standards**

- Should the new standards apply only to the FEMA-mapped and/or master-planned floodplains, or should they also include any additional 100-year flood limits shown along tributaries as a requirement of preliminary plats?

- Are there other standards or combinations of standards that should be considered? See:

    - No Adverse Impact fact sheet, page 6 of *Fact Sheets* booklet;

    - Standards Exceeding Minimum Federal Requirements fact sheet, page 8 of *Fact Sheets* booklet;

    - CDM Report, Section 4.

**Appendix A**

**Salt Creek FIS Flood Storage Areas Explanation**

Official floodplain mapping completed through the National Flood Insurance Program (NFIP) divides the 100-year floodplain into the **floodway** and the **flood fringe** (see pages 38 & 70-71, FEMA Flood Insurance Report (FIS), April 16, 2002 Task Force Materials):

- The **floodway** is typically defined as the channel of a stream, plus any adjacent floodplain area, that must be kept free of encroachment so that the 100-year flood can be carried without increasing flood heights by greater than 1 foot.

- The **flood fringe** is typically defined as that portion of the floodplain outside of the floodway that could be completely obstructed without increasing the 100-year flood elevation by more than 1 foot.

- The **FIS model** that is utilized to make the determination regarding a 1-foot rise takes into consideration the *flood conveyance* properties of the floodplain, but not the *flood storage* properties.

- Several studies utilizing more sophisticated models that account for the flood storage component of the flood fringe, including the CDM Report and the COE Study completed for the Floodplain Task Force, have demonstrated that the loss of flood storage of floodplains is likely to cause **greater than 1 foot of rise** - perhaps as much as several feet in some areas.

- The **Salt Creek floodplain** is further complicated by the fact that the traditional definitions for "floodway" and "flood fringe" do not apply. While the floodway was mapped to stay within the levee system, there are flood storage areas identified in the flood fringe that must be kept open in order to prevent flood heights from increasing *greater than 1 foot*, even according to traditional models.

- Page 71 of the FIS identifies the **location of the storage areas** and the percentage, by volume, of allowable fill (ranging from 0-100%) in each area.

- The preservation of flood storage in the Salt Creek flood fringe as identified in the FIS has never been **adopted as a regulatory standard**.

**Appendix B**

**Minimum Flood Corridor Explanation**

- There is currently a discrepancy between the City of Lincoln ordinances and design standards regarding the circumstances when this standard is applied.

- The City's ordinances indicate that a Minimum Flood Corridor must be preserved along all streams (draining > 150 acres) *outside the FEMA-mapped floodplain*, while the design standards indicate that the Corridor must be preserved along all streams (draining > 150 acres) where there is no FEMA-mapped *floodway*,

- The latter standard would apply to a significantly greater number of streams, particularly streams within the City's 3-mile jurisdiction which have a FEMA-mapped floodplain, but where no detailed report has been completed, and thus there is no mapped *floodway*.